YOUR HOME OFFICE

TRI MICRO

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YOUR HOME OFFICE

A Word Processor

by

David W. Johnson

A Product of

International Tri Micro

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YOUR HOME OFFICE

Fully Integrated Applications on A Single Disk

Word Processing and Spreadsheet Calculations

YOUR HOME OFFICE is a fully integrated software system. With this system, you have the ability to do word processing and complex calculations. Each application's individual features are enhanced by the ability to work simultaneously with a variety of data.

To work with YOUR HOME OFFICE, you will need the following equipment:

1. A Commodore 64, 128, or SX-64 computer.

   or

   An Atari 800, 800XL, 65XE or 130XE.

2. A Commodore 1541 disk drive or compatible drive.

   or

   An Atari drive or compatible drive.

3. A TV or monitor.

4. A Commodore 1526, 801, 802, DSP 1101, or other compatible printer, properly interfaced.

   or

   An Atari printer or compatible printer, properly interfaced.

What can YOUR HOME OFFICE do?

The word processor in YOUR HOME OFFICE lets you use your computer like a typewriter, with its own electronic memory and correcting capabilities. With the word processor you can:

* Create and edit up to 77 characters per line and 99 lines of text per file;

* Link an unlimited number of individual files into a single document, so that you have unlimited length;

* Insert and delete characters and lines of text;

* Copy, insert, and delete blocks of text;

* Search for and replace words and phrases;

* Save, load, delete and merge files;

* Format and print documents;

The spreadsheet uses a ledger paper form on the screen to perform calculations, much as an accountant would with pencil and paper. In preparing financial and statistical analysis, you can:

* Enter numbers, formulas, and text in up to 850 cells (17 columns X 50 rows);

* Prepare annual and monthly budgets;

* Perform automatic calculations;

* Edit and format your data easily;

* Reconcile and balance checkbooks;

* Merge data into the word processor to obtain customized reports;

What is Integration?

Integration has been defined in various ways by many software companies. As used in describing YOUR HOME OFFICE, the integration features result in the following benefits.

* Easy operation on a single disk drive. No need to swap multiple program disks in and out.

* Reduced loading time between programs, as you only have to load the one system disk.

* No worry about formatting data from each different program in a family of programs, so that it can be read by other programs in the family.

  Unlike the ''shared data'' approach, the information can be read by the integrated system, not by individual programs.

* Maximum flexibility in designing forms, proposals, mailers, etc., since you can place the data anywhere within the text or document.

* Eliminates duplicated effort in entering the same information twice to be read by separate programs for different analysis of the same data.

* The ability to view the financial data you are analyzing in one window while writing about it in another window.

* Being able to retain simultaneously in memory the word processing file and the spreadsheet file. This allows you to move freely between the data as you are working with it to maintain on-line continuity as you perform your task.

Although there are some tasks which are better performed with so-called stand alone or dedicated application programs, anyone who needs to work with a variety of information in a simultaneous fashion will find the benefits of integration provided by YOUR HOME OFFICE a significant step forward in personal productivity on a home computer.

LOADING INSTRUCTIONS

Commodore Computers

Turn on the computer, disk drive, monitor and printer. Insert the YOUR HOME OFFICE disk into the drive, with the label facing up, and close the drive door. Type:

LOAD''*'',8 (press the RETURN key).

The screen will display a READY prompt. Type:

RUN (press the RETURN key).

The word processing screen will appear.

ATARI Computers

Turn on the drive, and insert the disk with the program label face down. Close the drive door.

Turn on your computer and the program will automatically load. The word processing screen will appear.

ADDENDUM

IMPORTANT! ATARI COMMANDS

The most frequently used key in the C-64 version of THE HOME OFFICE is the f1 key. This key turns on the command mode in both the word processor and the spreadsheet. If you are working with an ATARI computer, you enter the command mode by pressing the CTRL (control) key and the C key (´´c´´ for command).

CTRL + C = F1 Enter command mode.

When you use the FD command in the word processor or the FORMAT command in the spreadsheet, commands used to prepare blank disks for data, the prompt asking you for the disk name and id number will not appear. You only have to answer ´´yes´´ to the ARE YOU SURE Y/N? question by pressing Y. The formatting process will then begin.

Editing Mode.

The cursor movement is controlled by different keys on the ATARI computer than on the C-64. Insteadh of the two keys, marked ´´CRSR´´ with the arrows, the ATARI has four keys in the right hand side of the middle two rows. Each of these keys has an arrow indicating the direction of the movement. To move the screen cursor in the direction of the arrow, hold down the CTRL and the key with the appropriate arrow. Instructions on WP - 002, WP - 003, CALC - 002 to 003, CALC - 012.

The ability to insert and delete text is also controlled by different keys on the ATARI computers. To insert characters, you must hold down the CTRL and press the Insert Key locaated at the upper right hand corner of the keyboard. To delete characters, you must hold down the CTRL and press the Delete/BackS Key also located at the upper right hand of the keyboard. Instructions on WP - 002, WP -004 to 008, CALC - 003.

CTRL + Arrow Key **Cursor up, down, left, right.**

CTRL + Insert **Inserts a space left of cursor.**

CTRL + Delete/BackS **Deletes text to left of cursor.**

Command Mode

The repeat command which repeats the last command executed is different in the ATARI version because the ATARI Logo key is reserved for another function. To utilize the repeat command, you press the CTRL key and the Q key together. This function is referenced in WP - 007, CALC - 007 to 008.

ADDENDUM

A help function has been added to both the C-64 version and the Atari version of the program. To access help in the C-64, press F5. To do so in the Atari, press the CTRL key and ''H''.

F5 **C-64 Help key**

CTRL + H **Atari Help key.**

So that you can print a catalog of the data disk while either in the spreadsheet or the word processor, two commands have been added. You must first be in command mode.

pd **Prints directory while in word processor.**

pdir **Prints directory while in spreadsheet.**

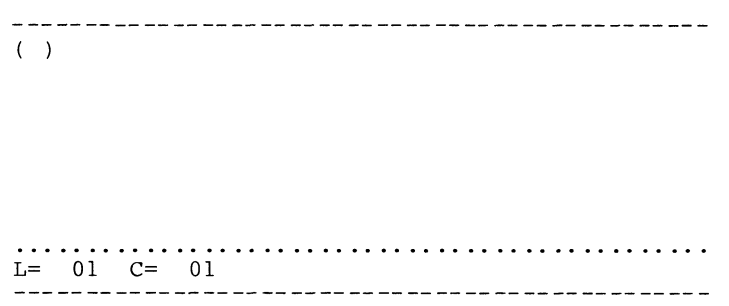
Since the ATARI has less memory available than the C-64, it is not possible for both the word processor and the spreadsheet to reside in memory at the same time. Therefore, when you initially load the program you will be presented with a main menu, presenting you with two choices:

(1) SPREADSHEET

(2) WORD PROCESSING

Choose whichever program option you wish to activate and the module will load. The commands for moving between the modules remain the same. You type ''tc'' or ''tw''. Typing these commands in the Atari version activates a prompt of ARE YOU SURE Y/N?. Be sure that you have saved your file before you respond with a Y. The data will be lost once the transfer between programs begins. Once you have typed Y, the screen instructs you to insert the system disk. If the program disk is not currently in the drive, insert it now. Once the chosen program has loaded, you can remove the program disk and re-insert your data disk.

When the word processor screen appears, you know that the program has successfully loaded. The following should appear on the monitor:



The white square in the upper left hand corner is called the ´cursor´. It is the marker for where your text will appear when you type. The reverse video ´L=´ indicates the line (01) and ´C=´ the column (01) that the cursor is currently positioned in; whenever you move the cursor, these numbers change.

You now have the ability to use your keyboard like a typewriter. REMOVE THE PROGRAM DISK FROM THE DRIVE AND INSERT A RAW BLANK DATA DISK. Caution: You will **erase** everything on the disk you are about to format. Make sure that it is a new disk.

Enter command mode by typing f1.

A **W>** appears at the bottom of the screen above the line and column indicators. **Type fd and press RETURN.**

The screen asks ARE YOU SURE Y/N? Press **Y.**

You are asked for a disk name (up to sixteen characters long) followed by a two digit id number. Type word processor,01 and press the RETURN key. The drive will spin for a few minutes and format the disk, preparing it to accept data.

The Word Processor has three modes: the Editing mode, the Command mode, and the Print Formatting mode. We´ll begin with the Editing mode.

---------- EDITING MODE ----------

Press these keys to control the cursor

← CRSR →	Cursor left / Cursor right	↑ CRSR ↓	Cursor up / Cursor down
f7	Cursor to right side of page	f8	Cursor to left side of page
CLR HOME	Cursor to top of file	SHIFT CLR HOME	Cursor to bottom of file
INST DEL	Deletes text to left of cursor	SHIFT INST DEL	Inserts a space left of cursor
C= @	Restores text	RETURN	Carriage return with line feed

CTRL ← Sets tab position where marked

← Moves cursor to pre-set tab positions

CURSOR LEFT and RIGHT

The cursor keys at the lower right hand corner of your keyboard control the horizontal and vertical movement of the screen cursor. **Press the left/right CRSR key once.**

The cursor moves one character to the right.

Now hold down the SHIFT key and press the left/right CRSR key.

The cursor moves one character to the left.

Press and hold down the left/right CRSR key until the cursor reaches column 77. This 'automatic repeat' works for all keys. Now hold down the SHIFT and press the left/right CRSR keys until the cursor moves back to column 01.

The screen only shows 37 columns of text at one time, but through a technique called 'scrolling' you may enter up to 77 columns of text per line. The text simply shifts to the left when you pass column 37 and continues until you reach column 77.

CURSOR UP AND DOWN

Position the cursor at line 01, column 01. To move down one line, press the **up/down CRSR** key once.

ADDENDUM

IMPORTANT! ATARI COMMANDS

We have already explained that each cell can have four different modes. If you are working with an ATARI computer, you enter the command mode by pressing the CTRL (control) key and the C key (´´c´´ for command).

CTRL + C = F1 Enter command mode.

The other modes are accessed as follows:

CTRL + N = F4 Enter numeric mode.

CTRL + T = F2 Enter text mode.

CTRL + F = F3 Enter formula mode.

Note that on the command mode summary, the commands for ´´id, ha, and fu´´ do not apply. There is no initialization disk command, and no split screen mode. The mapping commands are also diferent. They are covered in the appropriate sections.

To cursor left and right between the cells, use the CTRL key in combination with a letter key.

CTRL + L = F8 Cursor left one cell.

CTRL + R = F7 Cursor right one cell.

Hold down the **SHIFT and press the up/down CRSR key.** The cursor moves up one line.

Press and hold down the up/down CRSR key until you reach line 99. This is the last line of your file. Now hold down the SHIFT and up/down CRSR keys until the cursor moves back up to line 01. The text below is an exercise to begin word processing. Press the SHIFT key to type capital letters. Press the RETURN key (<--´s in reverse video) to force a carriage return and line feed, just as you would on an electric typewriter. If you press RETURN while holding down the SHIFT key, the RETURN will not be processed and no line feed with carriage return will occur. Type the text EXACTLY; there are intentional errors.

Notice the reverse video arrows where you pressed the RETURN key. These tell the printer to return to the next line. They will not show up in your document when you print it out. You will also note that if you typed a SHIFTED ´2´ to obtain quotation marks, the screen only displays a single quotation mark. In order to obtain true double quotes where necessary, type a SHIFTED ´2´ twice. With the cursor positioned at line 01, column 01, type the following:

```
---------------------------------------------------------------
What is a Word Processor?<--
<--
A word processor is a ´´tool´´ that allows yoo to enter, edit,
print and store text, using a coomputer. A word processor will
save you many hours of typing. Using the 64 keyboard as a
typewriter, you enter characters electronicaly onto a video
screen.<--
<--
<--
<--
A word processor also allows you to change the format of yout
document without having to retype the entire thing. By
inserting a few simple commands in your texxt you can change
margins, page size, line spacing, and print with bld type.<--
---------------------------------------------------------------
```

CURSOR TO LEFT AND RIGHT SIDE OF SCREEN

You can only view 37 characters on the screen at once, however, the screen is 77 characters wide. This means the screen is actually two halves. To see the right half, press the **f7** key. To see the left, press **f8** (hold down SHIFT and press f7). When you press the f8 key, the cursor will also advance down one line to help you read through a document. Using these two keys you can scan the entire file quickly and easily.

CURSOR TO TOP AND BOTTOM OF FILE

Press the **CLR/HOME** key to move to the top of file. You are back at line 01, column 01.

Now hold the SHIFT and press CLR/HOME to move the cursor to the bottom of the file. You are back to the last line on which the cursor was positioned. Using these two keys you can move from the beginning to the end of your file instantly.

Got it so far? Good. Now, let´s fix those errors we created in our sample file.

Using the CRSR keys, move the cursor to line 03, column 42. To correct the spelling of yoo to you, simply position the cursor over the second ´o´ and press the ´u´ key. In this way, you can correct mistakes without having to retype everything.

DELETING AND INSERTING CHARACTERS

Move to line 04, column 15. Position the cursor over the second ´o´ in coomputer. To delete it, press **INST/DEL.**

This deletes text to the left of the cursor. Now move the cursor to line 05, column 73.

To insert a space so you can add the missing ´l´ to electronicaly, position the cursor over the ´y´.

Hold down SHIFT and press INST/DEL. This inserts a space to the right of the cursor. All you have to do now is type ´l´. In this way, you can delete and insert characters at the touch of a key.

Let´s try the next paragraph. Move the cursor to line 10, column 61. To correct the spelling of yout to your, position the cursor over the ´t´ and type the ´r´.

Move the cursor to line 12, column 07. To delete the extra ´x´ in texxt, position the cursor over the second ´x´ and press the INST/DEL key.

Stay in line 12, but move the cursor to column 74. To insert a space so you can add the missing ´o´ to bld, position the cursor over the ´l´, hold down the SHIFT key, and press the INST/DEL key. Now type ´o´ in the space.

Press the f8 key, then the CLR/HOME key to move the cursor back to the top of the file, at line 01, column 01.

RESTORING DELETED TEXT

With the cursor positioned over the 'W' of what, press the RETURN key. WHOOPS! The entire line is deleted. NEVER USE THE RETURN KEY TO MOVE THE CURSOR AROUND. If you do, you may find yourself deleting some of your document.

Each time you press the RETURN or INST/DEL key, the line or character deleted is saved to a 'buffer'. This means that if you should make a mistake all is not lost. Simply position the cursor back at line 01, column 01.

Hold down the C= key and press the @ key. The Commodore logo key is at the lower left hand corner of the keyboard. The deleted line will be restored.

Since this line is still in the buffer, you can repeat it anywhere you position the cursor. To see this, move the cursor to line 15, column 01. Hold down the C= key and press the @ key again. You may repeat this procedure until you press the RETURN key and a new line is saved to the buffer. This command only works with the LAST line or character deletion.

SETTING TABS

To set a tab position, move the cursor where you want to set the tab, hold the **CTRL key and press the** ← key (the left arrow at the upper left hand corner of the keyboard). A * will appear at the bottom of the screen, showing what column the tab is set in. Experiment with setting tabs in different columns; you may set as many tabs as you like. A tab is automatically set in column 77, so you never have to set one there. When finished, move the cursor back to column 01.

To move to a tab position, press the ← key.

Each time you press it the cursor will advance to the next set tab. When you reach the right half of the screen, and want to return to column 01, press the f8 key or the left/right CRSR key.

To erase a previously set tab position, use the ← key to move to the tab position. Hold down the CTRL key and press the ← together, just as you did when you wanted to set a tab position. The asterisk at the bottom of your screen will disappear indicating that the tab has been erased.

Now that you have the Editing mode under control, let's move on to the Command mode.

---------- **COMMAND MODE** ----------

Press f1 each time you want to type a new command
Press C= and Q to repeat the last command

f1	**To enter Command Mode**	**ca**	**Catalog of disk** **Press SPACEBAR to pause and RETURN to continue**

Editing Commands

il	**Insert line**	**ib**	**Insert block of text**
dl	**Delete line**	**db**	**Delete block of text**
sp	**Set pointer**	**sr**	**Search for word**
ep	**Erase pointer**	**re**	**Search and replace**
cp	**Clear all pointers**	**ct**	**Clear all tabs**
cb	**Copy block of text**	**cm**	**Clear memory**

File Commands

sf	**Save file**	**df**	**Delete file**
lf	**Load file**	**mf**	**Merge file**

Print Commands

***p**	**Print screen**	**pr**	**Print file from disk**

Normally when you use the word processor, you simply type in text, which is displayed on the screen. However, you are able to give the word processor a special set of commands by pressing the **f1** key. These commands are all two letter commands that tell the word processor to perform one definite function. Once the function is completed, you may go back to normal typing.

Press the f1 key.

A **W>** will appear just above the L= at the bottom left hand corner of the screen with the cursor beside it. At this point, the word processor is waiting for you to type in a two letter command, in either upper or lower case.

CATALOG A DISK

To see a catalog of the disk on your screen, type **ca** and press RETURN. The catalog lists the contents of a disk and shows how many blocks remain free. Always have another data disk formatted so you can change disks easily if one becomes full. One block equals 254 characters. When your catalog gets long, you can press the SPACEBAR to pause scrolling through it, and the RETURN key to continue. Follow the instructions on the screen and press the RETURN key.

REPEAT COMMAND

Hold the **C= key and press the Q key.** You will see a catalog of the disk once again. This command tells the word processor to repeat the last command. You may repeat the last command as many times as you want until you press another key.

INITIALIZE A DISK

Press f1, type **id** to initialize a disk.

The id should be done just before saving a file or after changing disks. You may also use it if the drive is behaving erratically and you wish to initialize the disk.

EDITING COMMANDS: INSERTING and DELETING LINES

Move to line 05, column 01. To insert a blank line, press f1, type **il** and press RETURN.

Press f1 again. Type **dl** and press RETURN to delete the line. In this way, you may insert and delete whole lines, instead of doing it character by character.

SETTING, ERASING and CLEARING POINTERS

Move the cursor back to line 01, column 01. Hold down the SHIFT key and press the INST/DEL key three times. The entire document shifts to the right three spaces. In order to avoid moving text you don't want to move, you must set a pointer at the end of the line or paragraph in which you are deleting or inserting. This will stop all text movement beyond the pointer, keeping the remainder of the text as you left it. To see how this works, let's first move the text back into its original format. Move the cursor to line 01, column 04 and position the cursor over the 'W' of What. Now press the INST/DEL key three times. The entire document shifts back three spaces.

Move to the last line of the first paragraph, line 06, column 01. Press f1, type **sp** and press RETURN.

A ´<´ appears at the right side of the screen, signifying a pointer has been set. Now move the cursor back to line 01, column 01, hold down the SHIFT key and press the INST/DEL key a few times. The only text that moves is the text before the pointer. Remember to always set pointers at the end of any text in which you want to insert or delete. It is easiest to get into the habit of SETTING A POINTER AT THE END OF EACH PARAGRAPH AS YOU ARE TYPING. In this way, you do not have to set the pointers at editing time.

To erase the pointer, simply position the cursor on the line the pointer is set, line 06. Press f1, type **ep** and press RETURN. The ´<´ will disappear, signifying the pointer has been removed.

To clear all pointers, press f1, type **cp** and press RETURN.

COPYING, INSERTING AND DELETING BLOCKS OF TEXT

A block of text is a grouping of text and can be up to 16 lines long. Blocks of text may be deleted with a single command instead of having to delete it line by line. Blocks of text may also be moved to other areas of your document with a single command.

The beginning of a block of text is the line on which your cursor is positioned. The end of a block of text is marked by setting a pointer on the last line.

To move the first paragraph, mark the end of your block by setting a pointer at the last line of the block. Move to line 06, press f1, type **sp** and press RETURN. As before, a ´<´ will appear at the right side of the screen.

Position the cursor on the first line of the block we want to move, line 01, column 01. Press the f1 key, type **cb** and press the RETURN key. The entire block has now been copied to a ´buffer´, where it will remain until removed by a command.

To insert the block, position the cursor where you want to move the block. For this tutorial, move the cursor to line 20, column 01. Press f1, type **ib** and press the RETURN key. The screen will read WORKING in reverse video and the block will copy to where you have positioned the cursor.

You can delete blocks in the same way. Set a pointer at the end of a block. Move to line 25, column 01. To delete the block, press f1, type **db** and press RETURN. The screen reads WORKING in reverse video and the block will disappear. This block now replaces the first block in the buffer. As with the cb command, you may insert the deleted text elsewhere in the document by using the ib command.

When you use either the cb or db commands, the text is held in the buffer even when you load new files from disk. This lets you copy a block, switch disks, load a file, and copy the block to another document in the new file.

SEARCHING AND REPLACING TEXT

One of the main advantages of the word processor is the search and replace function. Using this function, you can automatically search for an occurrence of a specific group of characters or words. You can also search for a particular word and replace it with another word. Let´s search for the word ´processor´ in our sample document.

Press the CLR/HOME key to move the cursor to the top of the file. When the word processor begins to search for a particular character or word, it begins looking at all text FOLLOWING the cursor. If you have the cursor at the end of the file, the search will reveal nothing, since there´s nothing to search for.

Press f1, type **sr** and press RETURN. The screen reads SEARCH:. Type processor and press the RETURN key. The word processor in line 03 is immediately highlighted in white. The screen reads CONTINUE Y/N?. Press the Y key (for yes) and the next occurrence of the word is highlighted. The screen reads CONTINUE Y/N? Press the Y key again and the next occurrence of the word is highlighted. Press the Y key once more and you´ll be back in the normal editing mode, since every occurrence of processor has been found.

Notice the computer did not find Processor. That´s because of the capital P. Remember to always type the word you are looking for the exact way it appears in your text.

Now let´s replace the word **Processor with Editor.**

First move to line 01, column 01. Press f1, type **re** and press RETURN. The screen will read SEARCH:. Type Processor and press the RETURN key. The screen will read BECOMES:. Type Editor and press the RETURN key. The first occurrence of Processor is highlighted and the screen reads CONTINUE Y/N?.

Press the Y key and the screen reads REPLACE Y/N?. Press the Y key again and the Processor will be changed to Editor. If you don´t want to change the word, press the N key. The next occurrence of Processor will then be highlighted and the screen reads CONTINUE Y/N?. Press the Y key and the screen reads REPLACE Y/N? Press the Y key and again, Processor will be changed to Editor. Since this is the last occurrence of Processor, the computer returns to the normal editing mode.

When replacing text, the word processor will automatically set pointers if the replace word is a different length than the search word. This will keep your document formatted properly.

CLEARING TABS

To clear the tabs you set earlier, press the f1 key, type **ct** , and press the RETURN key. All of the asterisks will disappear, and you may now set new tabs.

FILE COMMANDS: SAVING, LOADING, DELETING, AND MERGING FILES

Let's save the file we just created. Make sure your formatted data disk is still in the drive. Press f1, type **sf** and press RETURN. The screen reads SAVE FILE:. You may now type any name you want to give the file, up to sixteen characters long. For the sake of this tutorial type **demo** and press RETURN. The disk drive will then write this new file to the disk under the name demo.

Save the same file under a different name now. Press the f1 key, type sf and press the RETURN key. When the screen reads SAVE FILE: type demo2 and press the RETURN key. The disk drive will then write this file to the disk under the name demo2.

Note: If you are saving a file already on disk, and type in the same filename as the file on disk, the screen will ask you if you want to REPLACE Y/N the old file with the new one. Type Y for yes and N for no. This message will also come up if the disk is full. Use the ca command to catalog the disk, then check to see how many blocks free are remaining. When the disk is full, always answer N (no) to the REPLACE Y/N? prompt. Insert a new, formatted disk and save the file to this disk instead.

To load the file you have saved to disk, press f1, type **lf** and press RETURN. The screen reads LOAD FILE:. Type demo and press the RETURN key. The disk drive will then read the filename from the disk, and the file will appear on the screen. If the filename is not correct, however, the screen will read NO FILE!: PRESS RETURN. You should verify your filename by running a catalog of the disk. If the filename is not present in the catalog, you did not save the file. Make sure you type the filename EXACTLY as it appears in the catalog.

To merge files, press f1, type **mf** and press RETURN. The screen reads LOAD FILE:. Type demo2 and press the RETURN key. The file will be added to the bottom of the text of your current screen file. Remember, the line limitation per file is 99 lines. If the file you are merging and the screen file exceed 99 lines, some text will be cut off.

To delete a file from the disk, press the f1 key, type **df** and press the RETURN key. The screen reads DELETE FILE:. Type demo2 and press the RETURN key. The disk drive will spin, deleting the file demo2 from the disk.

Once you have deleted a file, it cannot be restored! Make sure that you want to delete the file before using this command.

CLEARING MEMORY

Be careful when using this command, as it erases everything in the computer's memory. Make sure you have already saved your file to disk, or really want to clear the screen and start over. The only thing retained after you type a **cm** command is the text in the block buffer.

To clear the screen, press f1, type **cm** and press RETURN. The screen reads CLEAR ALL Y/N?. This is your chance to reply with an N if you decide not to clear the screen after all. For now, type Y and press the RETURN key. The screen will immediately clear and you may start fresh.

PRINT COMMANDS

After you have written your letter or report, you will probably want to print it. Make sure your printer is properly interfaced with the Commodore 64, and is turned on.

Load the file **demo** from disk.

To print the file currently on the screen, press the f1 key, type ***p** and press the RETURN key. The contents of your C-64's memory will be printed. To print a file you have already saved to disk, press the f1 key, type **pr** and press the RETURN key.

When you print a file from the disk, the screen text will be automatically saved and the screen will read SAVING..TW (the TW stands for temporary workspace). The screen will then read LOAD FILE:. Type demo and press the RETURN key. The contents of the file will be loaded into the computer and printed.

Notice the printed copy doesn't have any margins. That's because we haven't set any formatting commands yet. But, since you now have the Command mode under control, let's move on to the Print Formatting mode.

PRINT FORMATTING

This mode is in reverse video

CTRL 9	Enter Print Formatting Mode	CTRL 0	Exit Print Formatting Mode

TYPE: (XX=a number)

Margins

lmargXX;	left margin	rmargXX;	right margin
justify	flush right margin	nojustify	turns off justify
nowrap	turns off word wrap when printing	wrapon	turns on word wrap again for printing

Pages

papersizeXX;	Sets paper size to XX;	pause	Stops printer
pagelenXX;	Sets text length XX;	#page	Prints page number
pagepause	Printer stops end of every page	set#pgXX;	Sets beginning page number
nextpage	Forces new page	lsXX;	Sets line spacing(to 10)
linkfile	Joins files into document	center	Centers text on line typed

Commands for 801 and 1526 Printers

asc14;	Turns on enhanced print	asc15;	Turns off enhanced print

Commands for DSP 1101 Printer

asc27;79;	Bold print	asc27;69;	To underscore
asc27;87;	Shadow print	asc27;82;	To turn off underscore

asc27;38; Turns off bold or shadow print

ADDENDUM

IMPORTANT! ATARI COMMANDS

To enter print formatting mode, you must first turn on reverse video. To do this on the ATARI, you simply use the ATARI logo key to ´´toggle´´ reverse video on and off. A ´´toggle´´ is a key which, when pressed the first time, turns on a condition, and when pressed the second time, turns off the condition. To enter reverse video, press the LOGO key. Type in the print formatting commands. When you wish to return to typing normal text, press the LOGO key once again. You have turned off reverse video.

LOGO **Turn on reverse video.**

LOGO again **Turn off reverse video.**

You've probably been saying to yourself: 'This is great, but how do I get my printed copy to look the way I want it? What I see on the screen is not what I want to print out.'

The Print Formatting mode is the mode you enter when you want to give the computer certain commands to format a document. These commands control the final appearance of your copy and are only executed when a document is printed. They are typed in lower case and will not show up in your printed copy. Since these commands are entered as text, there has to be some way for the computer to distinguish the format commands from the actual body of text itself. This is done by typing the format commands in reverse video.

It is more convenient to type these format commands at the very beginning of your document, but they may be embedded at any time. Sometimes you may want to change margins to accomplish a block indent, set bold type, or center lines at different places in your document. You can either type them in as you go or set them later through the use of the INST/DEL key and the insert line command. The format commands must be typed BEFORE the text you wish to affect.

ENTERING and EXITING PRINT FORMATTING MODE

First, let's make some room at the top of your present screen file, demo. Move the cursor to line 01, column 01. Press f1, type **i1** and press RETURN. Now you have a blank line open to enter format commands in reverse video.

To enter the Print Formatting mode and turn on reverse video, hold down the **CTRL key and press the 9 key.** Type the following in lower case letters:

lmarg10;:rmarg70;:justify: (press the RETURN key)

Now move the cursor to line 09, column 01 (the blank line between the two paragraphs) and type:

lmarg20;:rmarg60;:nojustify: (press the RETURN key)

To exit the Print Formatting mode and turn off reverse video, hold down the **CTRL key and press the 0 key.**

Notice the letters you have entered are reversed from the normal text. This is what we mean by reverse video. You have just told the computer to set the left margin of the first paragraph at column 10, the right margin at column 70, and to justify, or give the printed copy a flush right margin. With the second format command, you told the computer to set the left margin of

the second paragraph at column 20, the right margin at column 60, and to turn off the flush right margin.

Notice the semi-colon and colon placed between commands. THESE ARE VERY IMPORTANT! The semicolon is ALWAYS used after a number (like 10 and 70), and the colon is ALWAYS used to separate multiple instructions on a line.

To see the printed text, press the f1 key, type *p and press the RETURN key. Notice the text is printed exactly as you told the computer to print it.

Note: Do not attempt to use the *p with the linkfile command. The only file which will print is the file in memory.

MARGINS

lmargXX;

Typing this sets your left margin at column XX. Simply substitute the XX with the column number you want the left margin to begin at (such as 05, 10, 20,etc.).

rmargXX;

Typing this sets your right margin at column XX. Substitute the XX with the column number you want the right margin to end at (such as 60, 70, 75,etc.).

justify

Typing this gives your printed copy a flush right margin with all of the letters lining up in the last printed column. The words in the line will be appropriately spaced to achieve this.

Note: A justified right margin is typically used in formal documents such as term papers or reports; and an unjustified, or ragged edge, margin for informal documents such as letters and memos.

nojustify

Typing this turns off the right margin justification.

PAGES

papersizeXX;

Typing this tells the computer what size paper you are using. The word processor automatically defaults to an 8.5 X 11 sheet of paper (which contains 66 lines), so you don't have to use this command unless you're using a different size paper.

Substitute the XX with the number of vertical lines that make up the paper (such as 66). Assume that for every inch of paper size, there are six (6) lines.

pagelenXX;

Typing this tells the computer how many lines to print before it starts a new page. This allows you to set the margins at the top and bottom of the page. A command of pagelen55; would mean that 55 lines of text would be printed, then the printer would line feed 11 lines before beginning to print the next page. When you are ready to print your document, position the first page of paper where you want the printing to start in each page. Substitute the XX with the number of lines you want printed on each page (such as 55).

Note: the page length must always be smaller than page size number.

pagepause

Typing this tells the printer to pause at the end of a page. This allows you to insert paper if you are using single sheets as opposed to continuous feed paper. If you don't use this command, the printer automatically continues to the next page.

nextpage

Typing this forces the printer to advance to the next page. This is useful when you end something in the middle of the page and want to start the following text on the next page.

linkfile'type filename here'

Typing **linkfile** will link separate files into one document when you print. The file which you reference in quotation marks should be the filename of the file to which you are linking. For example, at the end of 'file1' you type linkfile'file2' so that file 2 will print in sequence after file 1.

Type this at the end of each file to link the next file to it. There is no limit to the number of files which can be linked together. Also, any formatting instructions in the first file will carry over to the next file, unless you change the formatting along the way.

You can link files on multiple disks. Insert the **pause** command just prior to the linkfile command. When the pause occurs, simply switch disks, press RETURN, and continue printing. Use the pr command to print linked files. You cannot link a screen file.

pause

Typing this causes the printer to pause until you press the RETURN key to continue. This is useful with the linkfile command and for changing print wheels (if you have a daisy wheel printer) in the middle of printing, or for switching disks when printing files. The printer will pause every time it reads a pause command embedded in the text. When the printer pauses, switch disks and press the RETURN key.

#page

Type this when you want the computer to automatically number your pages at the bottom margin during printing. The numbering begins at Page 1 and continues to increase the page count by one throughout the text. If you desire to begin at any other number but 1, use the following command.

set#pgXX;

Type this when you want to begin numbering at any page but 1. First turn on paging with the **#page** command.

Type **set#pgXX;**, substituting XX for the number with which you want to begin paging (such as 02, 05, 10, etc.).

lsXX;

Type this when you want to set the line spacing at anything but single spacing. Substitute the XX for the number of lines you want spaced between printed text (such as 02 for double spacing, 03 for triple spacing). The maximum amount of lines you can space is 10.

center

Type this before any line you want to center on the printed page. It must be typed on the same line you want centered.

SPECIAL PRINTER COMMANDS

These commands insert ASCII (American Standard Code for Information Interchange) characters in your text. The ability to insert these characters allows you to take advantage of different printer features such as enhanced printing, underlining, and boldface type. They are typed in reverse video just like all the other formatting commands.

For example, to cause enhanced printing on the Commodore 801 and 1526 printers, you would:

1. Press **CTRL 9** to enter Print Formatting mode.

2. Type **ascl4;** to turn on enhanced printing.

3. Press **CTRL0** to exit Print Formatting mode.

4. Type **''this will be enhanced''**

5. Press **CTRL 9** to enter Print Formatting mode.

6. Type **ascl5;** to turn off enhanced printing.

7. Press **CTRL 0** to exit Print Formatting mode.

8. Type **''and this will not''**

Your screen should look something like this:

ascl4; This will be enhanced ascl5; and this will not.

These special printer commands, like all other reverse video commands, will not show up in your printed copy. Remember to turn the print command ON before the text you want to affect, and to turn the print command OFF when you want the text to return to normal.

The word processor can only process six ASCII commands for every 80 character line. Therefore, you will need to watch the placement of your commands. Multiple ASCII commands may be necessary with non-Commodore printers. Please call if you have printer interface problems, 714-832-6707.

With the DSP 1101 Letter Quality printer, it is possible to underline using the ASCII commands. To make a blank underline, however, such as after a name, type NAME . Then turn on reverse video.

Type **asc27;69;** . Turn off reverse video. Type a period to mark the beginning of the underlining. Type some spaces for the

length of the desired underline, then type a period (or any other printable character). This last character is needed to end the underline when preceded by blanks. To end underlining, turn on reverse video and type **asc27;82;** . For example: (R = reverse on; O = reverse off).

NAMERasc27;69;0 . . Rasc27;82;O

For non-standard Commodore printers, you need to consult the printer manual to find the ASCII equivalent to activate bold, shadow, or other special printing features.

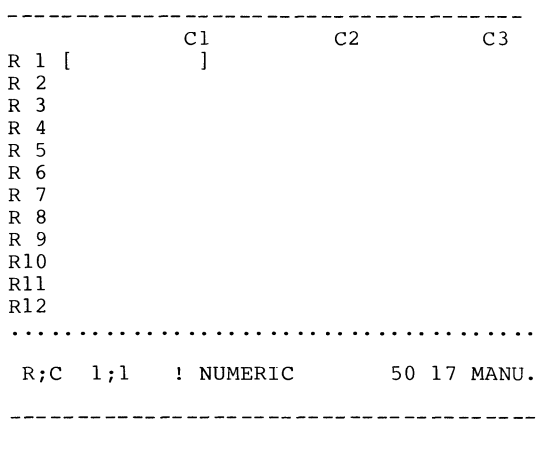
SPREADSHEET

The spreadsheet is set up like an accountant´s ledger, with rows and columns identified by the letters ´R´ and ´C´. The 50 rows and 17 columns that make up the spreadsheet intersect at a ´cell´. There are 850 cells that can hold numbers, labels (like SALES), or formulas.

The most common use for a spreadsheet is the financial statement, with the columns being the months of the year and the rows being different accounts or financial data. When this ´model´ has been set up, you can change one sales amount, and all the other amounts that are functions of sales will change automatically. You´ll never have to recalculate individual amounts again!

The spreadsheet can also be used for budgets, checkbooks, loan and mortgage payments, tracking stocks, profit and loss statements, income taxes and expense reports. With imagination, you can create a model for just about anything. Most people find the more they use a spreadsheet, the more uses they find for it.

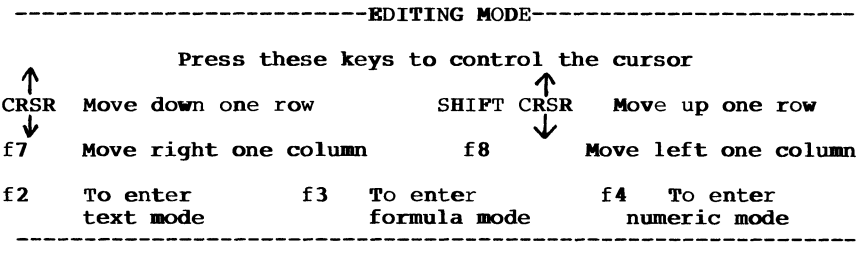
To enter the spreadsheet, press the f1 key, type **tc** , and press the RETURN key. The following screen will appear:



The spreadsheet is divided into 50 rows and 17 columns, but only 12 rows and 3 columns are visible on the screen at one time.

The intersection of row 1 and column 1, called a cell, is indicated by the large cursor block at R 1 and C 1. This is your current cell location, shown in the status line under the cells as R;C 1 1. The R stands for Row and the C for Column. A cell can hold a number (NUMERIC), label (TEXT), or formula (FORMULA).

The status line also shows you the data type of the cell (NUMERIC), the number of rows and columns in the spreadsheet (50 17), and whether you are in manual or automatic mode (MANU.). Below the status line is the command and data entry line, indicated by the C> and the flashing white cursor.



CELL CURSOR UP AND DOWN

To move down a row, press the **up/down CRSR** key once. The cell cursor moves to row 2, column 1 (or 2;1). Press the up/down CRSR key once again. The cell cursor moves to row 3, column 1 (or 3;1). Now hold down the up/down CRSR key until the cell cursor stops at row 50, column 1 (or 50;1). The screen 'scrolls' downward so you can get a window on all 50 rows.

To move the cell cursor up one row, hold down the SHIFT key and press the up/down CRSR key once. The cell cursor moves to 49;1. Now hold down the SHIFT key AND the up/down CRSR key until the cell cursor is back at 1;1.

CELL CURSOR LEFT AND RIGHT

To move the cell cursor one column to the right, press **f7** once. The cell cursor moves to 1;2. Press f7 once again. The cell moves to 1;3. Now hold down the f7 key until the cell cursor stops at 1;17. The screen scrolls to the right so you can get a window on all 17 columns.

To move the cursor one column to the left, press **f8** once (hold down the SHIFT key and press the f7 key). The cell cursor moves to 1;16. Now hold down the f8 key until the cell cursor is back at 1;1.

ADDENDUM

IMPORTANT! ATARI COMMANDS

The f7 and f8 keys are used in the C-64 to move the cursor to either the left or the right half of the screen. With the ATARI computers, the CTRL key is used to control left and right movement. To move to the left, hold down the CTRL and press the L key. To move to the right, hold down the CTRL and press the R key.

CTRL + L = F8	**Cursor to left side of page.**
CTRL + R = F7	**Cursor to right side of page.**

Since there is no CLR/HOME key on the ATARI computers, you must use the CTRL key to move to the top and bottom of file.

CTRL + A	**Cursor to top of file.**
CTRL + Z	**Cursor to bottom of file.**

Tab functions are also affected.

SHIFT + Tab	**Sets a tab position.** **Clears a pre-set tab position.**
Tab	**Move to pre-set tab position.**

To clear an already existing tab, use the TAB key to move to the TAB position. Hold down the SHIFT key and press TAB together to clear the tab.

To restore deleted text, the ATARI logo key at the lower right hand corner of the keyboard is utilized. Hold down the logo key and press the ESC key at the upper left hand corner of the keyboard. The deleted text will be restored.

LOGO + ESC	**Restores deleted line of text.**

ENTERING TEXT, FORMULAS AND NUMBERS

To enter numbers into a cell, you must be in NUMERIC mode. The spreadsheet defaults to NUMERIC mode automatically. To enter NUMERIC mode after accessing a cell, press **f4.**

With the cell cursor at 1;1, type 1000 and press the RETURN key. The data appears at cell 1;1. To enter data into a cell, you must enter the data on the command line AND press the RETURN key.

To enter text into a cell, you must be in TEXT mode. Press the **f2** key (hold down the SHIFT key and press the f1 key), type label and press the RETURN key. The word label will replace the 1000 in cell 1;1. Now press the f4 key, to enter NUMERIC mode again. The 1000 is still there. In this way you can label a cell with a name, and find that cell later by simply calling up the name.

To enter a formula into a cell, you must be in FORMULA mode. Press the **f3** key. Notice the word label on the command line. You may enter a number, text, a number and text, or a number and a formula. Type **#1 + #2** over the word label and press the RETURN key. A 3 will appear at the cell cursor and the command cursor will switch to NUMERIC mode to give you the answer, 3. Since there must be a way to tell a number in a cell from the cell coordinates (like 1;2), always precede a number with the pound sign, a #. So #1 + #2 means 1 + 2, or 3.

You may also use the INST/DEL and left/right CRSR keys to edit your entries, as with the Word Processor. This makes it extremely easy to correct mistakes or change data.

Now that you know how to move around the spreadsheet and enter numbers, text and formulas, let´s move on to the Command mode.

----------COMMAND MODE----------

Press f1 each time you want to type a new command
Press C= Q to repeat the last command

f1	To enter Command Mode	format	To format a disk
tc	To SPREADSHEET	reset	To reset computer
tw	To WORD PROCESSOR	ha	To split the screen
ca	Catalog of disk	fu	To return to full screen (of program you are currently in)
id	Initialize a disk		
coXX	Change colors		

Editing Commands

home	Move to cell 1;1	manu	Calculates a formula
gotoR;C goto[label] @label	Move to a specific cell (row R and column C) or label	auto	Calculates the entire spreadsheet each time a cell is updated
cinsert	Insert a column	freeze	Protects a cell from being changed during calculations
cdelete	Delete a column	thaw	Turns off the freeze command on a cell
rinsert	Insert a row	map	Transfers data from Spreadsheet to Word Processor cell by cell
ccoC;	Copies column C to columns where cursor is	mapoff	Turns off map command
rcoR;	Copies row R to row where cursor is	blkmapR;C	Transfers a block of data (cursor cell to cell R;C) from Spreadsheet to Word Processor
copy R;C	Copies cell R;C to cell where cursor is		
fitR;C	Copies the formula from cell R;C to cell where cursor is		

File Commands

sf	**Save a file**	**df**	**Delete a file**
lf	**Load a file**	**cm**	**Clear screen memory**

Format Commands

leftj	**To left justify numbers in a cell**	**float**	**Floating point format**
rightj	**To right justify numbers in a cell**	**$$**	**Dollar format**

The Command mode works the same way it does in the Word Processor; simply press the **f1** key every time you want to type in a new command.

You can also hold down the **C= key and press the Q key** to repeat the LAST command. This will save you the effort of typing in the same command over and over.

The best way to learn the spreadsheet is to create a model, enter some data, and perform some calculations. Let´s create a simple checkbook that automatically calculates the balance. First, let´s clear the screen.

EDITING COMMANDS

CLEARING MEMORY

To clear screen memory, press f1, type **cm** and press the RETURN key. The screen will ask: ARE YOU SURE Y/N. Press the Y key (yes) and the screen will clear. You can´t restore a screen once you have cleared it, so make sure you really want to clear memory each time you type this command.

The first step in creating a checkbook, or any other spreadsheet, is to enter column headings. A normal checkbook entry requires the date, description, check number, deposit amount, check amount, and balance.

Press the f7 key twice to move the cell cursor to 1;3. Press f2 to enter TEXT mode, type Checkbook and press the RETURN key. The maximum number of characters displayed in a cell is 11, but you may enter up to 36 characters on the command line. The bar to the left of TEXT on the status line shows the cutoff point for cell characters. This is simply to save space on the screen, all characters will appear when printed.

MOVING THE CELL CURSOR

Instead of using the up/down CRSR, f7 and f8 keys to move the cursor around, you can use commands to go directly to any cell. To move the cell cursor to 1;1, press f1, type **home** and press the RETURN key. This will work from anywhere on the spreadsheet.

To move the cell cursor directly to cell 3;1, press the f1 key, type **goto3;1** and press the RETURN key. The cell cursor moves instantly to the given cell. This command will save you time moving around the spreadsheet.

While at 3;1, press the **f2 key to enter TEXT** mode, type Check # and press the RETURN key. Remember, you can use the INST/DEL and left/right CRSR keys to edit any mistakes or changes.

Press the f7 key once to move the cell cursor to 3;2. Press the f2 key to enter TEXT mode, type Date and press the RETURN key.

Now move the cell cursor to 3;3. Press the f1 key, type goto3;3 and press the RETURN key. Press the f2 key, type Desc. and press the RETURN key (Desc. is short for Description).

Press the f7 key to move to 3;4. Notice the screen scrolls to the right, as before. Press the f2 key, type Deposit Amt. and press the RETURN key.

Press the f7 key to move to 3;5. Press the f2 key, type Check Amt. and press the RETURN key.

Press the f7 key to move to 3;6. Press the f2 key, type Balance and press the RETURN key.

Press the f1 key to enter Command mode, type goto4;1 and press the RETURN key.

To make the checkbook easier to read, let´s underline the column headings. Press the f2 key to enter TEXT mode, type ---------- (11 dashes) to underline Check # and press the RETURN key. Press the f7 key to move to 4;2. Instead of typing an underline again, you can use the copy command to copy data from one cell to another.

COPY DATA COMMAND

To copy 4;1, press f1, type **copy4;1** and press the RETURN key. The copy command will copy all the data from the cell you specify to the current cell, where the cell cursor is.

REPEAT COMMAND

Press the f7 key to move to 4;3. You may use the repeat command to place another underline in cell 4;3.

Simply hold the **C= key and press Q.**

The underline will be repeated. Continue pressing the f7 key and C= Q until you reach 4;6, to underline the entire row. Press the fl key, type goto5;2 and press the RETURN key.

While at 5;2, press the f2 key, type 1/1/85 and press the RETURN key. Now move the cell cursor to 5;3, using either the f7 key or the goto command. Press the f2 key, type Opening Bal. and press the RETURN key.

Now that some of the column headings, dates and descriptions are in place, you are ready to enter some data. Entering numbers is similar to entering text, and since the Spreadsheet defaults to NUMERIC mode for each cell, you won't have to press the f4 key every time.

Move the cell cursor to 5;6, type 1000 and press the RETURN key. This is your opening balance. Notice how the text is automatically left justified and the numbers are right justified.

Now you are ready to enter the first check. Move the cell cursor to 6;1. Press the f2 key, type 100 and press the RETURN key. Even though 100 is NUMERIC, typing it in the TEXT mode will left justify the numbers.

Move the cell cursor to 6;2, press the f2 key, type 1/2/85 and press the RETURN key.

Move the cell cursor to 6;3, press the f2 key, type Mortgage and press the RETURN key.

Move the cell cursor to 6;5. Type 600 (DO NOT press f2 this time; you want to enter a number here) and press the RETURN key. Now move the cell cursor to 6;6, under Balance.

ENTERING FORMULAS

You are now ready to enter a formula. Your checkbook balance equals the previous balance, plus deposits, minus checks:

Balance = Previous Balance + Deposits - Checks

Looking at the checkbook, the Previous Balance is in 5;6 (1000); the Deposits are in 6;4 (there are none); and the Checks are in 6;5 (600). We want the new Balance to go into 6;6, where the cell cursor is.

So now our formula looks like this:

Balance = Previous Balance + Deposits - Checks

6;6 <——— 5;6 + 6;4 - 6;5

Press the f3 key to enter FORMULA mode, type 5;6 + 6;4 - 6;5 and press the RETURN key. The new balance, 400, will appear in cell 6;6. Since this formula will work for the balance of every row, you can use the fit command to copy the formula from one cell to another.

COPY FORMULA COMMAND

Move to cell 7;6. Press f1, type **fit6;6** and press RETURN. A new balance of 400 will appear at 7;6. Press the f3 key to enter FORMULA mode, and notice the formula has been slightly changed to 'fit' the new cell. This formula stays in this cell until you change it, and will correctly calculate your new balance after you enter more data.

Move the cell cursor to 8;6. Repeat the fit command by holding down the **C= key and pressing the** Q key. A new balance of 400 will appear at 8;6. Now repeat the fit command in cells 9;6, 10;6 and 11;6 by using the repeat command. You can press the f3 key after each repeat to check the formulas, if you wish.

The fit command (fitR;C) and repeat command (C= Q) are extremely powerful spreadsheet tools. The fit command will adjust to the specifics of each new row and column instantly, and the repeat command will speed up your data entry considerably.

Now that you have entered the formulas down through 11;6, you can enter some more data for the checkbook. Enter the data as follows, and ignore the balance of 400 in rows 7 through 11. REMEMBER TO PRESS THE f2 KEY WHEN YOU WANT TO ENTER TEXT (the check #, date, and description). Press the RETURN key to enter the data in each cell.

	C 1	C 2	C 3	C 4	C 5	C 6
R 1			Checkbook			
R 2						
R 3	Check #	Date	Desc.	Deposit Amt	Check Amt	Balance
R 4						
R 5		1/1/85	Opening Bal			1000
R 6	100	1/2/85	Mortgage		600	400
R 7		1/3/85	Deposit	500		
R 8	101	1/10/85	Gas		50	
R 9	102	1/15/85	Electric		15	
R10		1/20/85	Deposit	700		

MANUAL MODE

Move the cell cursor to 7;6. The balance has not changed. This is because you are in manual calculation mode (the MANU. on the status line). In manual mode, a formula is only calculated when you press the RETURN key in the cell. Press the RETURN key now. The number will change to the correct balance, 900. To calculate the remaining balances, you can either cursor down to each cell with a formula and press the RETURN key, or enter automatic mode.

AUTOMATIC MODE

To enter the automatic mode, press f1, type **auto** and press the RETURN key. The screen reads WORKING.. as the calculations are made. All of the 400's will change to the correct balance for each row, computed according to the formula you 'fit' to each balance cell. Notice the MANU. on the status line has changed to AUTO. You may switch back and forth between these two modes by simply typing **manu or auto** after pressing the f1 key.

LOCKING A CELL

There may be times when you want to keep a particular cell constant, and not change its value during automatic calculations. You can use the freeze command to accomplish this. To see how this works, leave the cell cursor at 7;6. Let's 'freeze' the value 900, so it won't change when you recalculate the spreadsheet. Press f1, type **freeze** and press the RETURN key. The screen reads WORKING.. and a * will appear on the status line, indicating a freeze on the cell.

Now move the cell cursor to 7;5. Type **50** and press the RETURN key. You have added a check for 50, which would normally reduce the remaining balances by 50 in the automatic mode; but since you 'froze' the balance in 7;6 at 900, the balances remain constant.

UNLOCKING A CELL

To remove the freeze command, use the thaw command. Move the cell cursor to 7;6. Press the f1 key, type **thaw** and press the RETURN key. The screen reads WORKING.. and the * will disappear from the status line, indicating the freeze has been removed from the cell. The remaining balances show the debit of 50 now.

Move the cell cursor back to 7;5, type **00** and press the RETURN key to remove the 50 and return the checkbook balances to normal.

Sometimes you may want to insert or delete rows and columns. As with the word processor, this is a simple matter of typing commands in the Command mode.

Press the f1 key, type **home** and press the RETURN key.

INSERTING AND DELETING COLUMNS AND ROWS

To insert a column at column 1, press f1, type **cinsert** and press the RETURN key. The screen reads WORKING.. and a blank column will be inserted at column 1, with the rest of the data shifting one column to the right.

To delete the blank column, press f1, type **cdelete** and press the RETURN key. As before, the screen reads WORKING.. and the column will be deleted.

Move the cell cursor down one row to 2;1.

To insert another blank row, press f1, type **rinsert** and press the RETURN key. The screen reads WORKING.. and a blank row will be inserted at row 3.

To delete the blank row, press f1, type **rdelete** and press the RETURN key. As before, the screen reads WORKING.. and the row will be deleted. In this way you may insert and delete rows and columns wherever you want in your spreadsheet. Just remember a column insert shifts everything to the right and a row insert shifts everything down.

Note: Check your formulas after using these commands. If the formulas are no longer correct, reenter them using the fit command.

COPYING COLUMNS AND ROWS

You may also copy a column or row to another column or row. Let´s copy row 3 into row 14. Move the cell cursor to 14;1.

Press the f1 key, type **rco3;** and press the RETURN key. Always follow the row you want copied with a ´´;´´.

Now let´s copy column 6 into column 8. Move the cell cursor to 14;8. Press f1, type **cc06;** and press RETURN. Always follow the column you want copied with a ´´;´´.

Now delete column 8 and row 14 using the cdelete and rdelete commands. You may leave the cell cursor at 14;8 to do this, as the cell cursor can be ANYWHERE in the column or row.

FILE COMMANDS

SAVING, CATALOGING, DELETING AND LOADING FILES FROM DISK

Let´s save the Checkbook to disk now. The beauty of the computerized spreadsheet is that you can save a model to disk, and recall it later. This lets you put different data into the same model, which will speed up your calculations immensely.

To save the Checkbook spreadsheet, press f1, type **sf** and press the RETURN key. The screen reads: SAVE FILE:. Type in the filename checkbook and press the RETURN key. The drive will spin and the file ´checkbook´ will be saved.

Note: If you are saving a file already on disk, and type in the same filename as the file on disk, the screen will ask you if you want to REPLACE Y/N the new file with the old one. Type Y for yes and N for no. This message will also come up if the disk is full. Use the ca command to catalog the disk, then check to see how many blocks free are remaining. When the disk is full simply insert a new, formatted disk.

Save the Checkbook under a different name now. Press f1, type sf and press the RETURN key. Type Spreadsheet and press the RETURN key.

To see a catalog of the disk, press f1, type **ca** and press the RETURN key. The files ´checkbook.c´ and ´spreadsheet.c´ are followed by the c to let you know they are spreadsheet files (remember typing tc to enter the spreadsheet?). The disk name, id, and remaining blocks free are also shown. When you run out of blocks, insert a new formatted disk for more data storage.

Follow the screen directions and press the RETURN key.

Now let´s delete a file from the disk. Press f1, type **df** and press the RETURN key. The screen reads DELETE FILE:. Type SPREADSHEET and press the RETURN key. The file will be deleted. Make sure you really want to delete a file from disk, because once you do, the file is gone and you won´t be able to recover it.

Let's clear the screen memory and load a file from disk. Press f1, type **cm** and press the RETURN key. The screen reads: ARE YOU SURE Y/N. Type Y. The screen will clear.

To load a file, press f1, type **lf** and press the RETURN key. The screen reads: LOAD FILE:. Type checkbook and press the RETURN key. The Checkbook spreadsheet will load into the computer and appear on your screen.

FORMAT COMMANDS

LEFT AND RIGHT JUSTIFICATION

Text defaults to the left margin and numbers default to the right margin. To see how to move numbers to the left, move the cursor to 7;4, press f1, type **leftj** and press RETURN twice. Now move the cell cursor to 10;4 and press the RETURN key ONCE to left justify the number 700. Once you have typed the justification command simply move the cell cursor over whatever numbers you want to justify and press the RETURN key. To move the numbers back to the right, leave the cursor at 10;4, press f1, type **rightj** and press RETURN twice. Move the cell cursor to 7;4 and press the RETURN key ONCE. You cannot justify text in the right margin automatically, but you can use the INST/DEL and SHIFT INST/DEL keys to align your text as you enter it into a cell.

FLOATING POINT, DOLLAR AND INTEGER FORMATS

The spreadsheet allows you to format numbers three ways: $$ (dollar -- 00.00), int (integer --decimals are rounded off to whole numbers) and float (floating point -- 1.1). The spreadsheet defaults to floating point, which is accurate up to 10 digits. Once you change the format of a number in a cell, you will remain in that format until you change again. THE SIMPLEST THING TO DO IS TO SET YOUR NUMBER FORMAT BEFORE YOU START.

Move the cell cursor to 5;6. To change to the dollar format, press the f1 key, type **$$** and press the RETURN key.

The screen reads WORKING.. and the command line changes to 1000.00. To change cell 5;6 to 1000.00, press the RETURN key again.

Press the up/down CRSR key to move the cell cursor 6;6. Since you've already changed the format, all you have to do to change 400 to 400.00 is press the RETURN key. The screen reads WORKING.. and the format changes. Using the up/down CRSR key and the RETURN key, change the remaining balances in column 6 to the dollar format.

ADDENDUM

IMPORTANT! ATARI COMMANDS

LIST OF NEW COMMANDS

blkprintR;C	**Print a block of data (cursor cell to cell R;C) from spreadsheet.**
blkwpR;C	**Save a block of data (cursor cell to cell R;C) to be integrated into word processing file.**
lc (load calc)	**Load a transfer file created with the ´´blkwpR;C´´ command for merging into a word processing file.**
print	**Print one cell at a time from the spreadsheet. To be used to print formulas. Produces a sequential listing only.**
off	**Turns the print command off, to adjust row and column position in single cell printing**

Since the ATARI has less memory available than the C-64, it is not possible for both the word processor and the spreadsheet to reside in memory at the same time. Therefore, no windowing is available.

In addition, the printing of the spreadsheet is affected since you can´t immediately transfer from the spreadsheet to the word processor and print it through the word processor. A print mode accessed directly through the spreadsheet is available. This command is called **blkprintR;C .**

It works in a similar fashion to the ´´blkmap´´ command. The command treats the data in the spreadsheet as a block of text. To print the data, position the cell cursor in the upper left hand corner of the block and specify the row and column (R;C) of the lower right hand corner.

For example, position the cursor in cell 1;1. Enter command mode, and type **blkprint10**;6 and press the RETURN key. The printer will print the block of text from your checkbook example.

What happens when you want to insert a block of the spreadsheet or the entire spreadsheet into a word processing file?

First, save the file as a transfer file. To do this, enter command mode, type **blkwpl0;6** . You will be prompted for file name. Respond by typing in a filename of your choice, for example, ´´sample´´. You have now created a transfer file which can be positioned anywhere in a word processing file.

To see how this works, enter command mode, press tw to enter the word processor. The prompt appears ´´ARE YOU SURE Y/N?´´. Make sure that you have saved your data file before you respond with a ´´Y´´. The data will be lost once the transfer between programs begins. Once you have typed ´´Y´´, choose (2) from the Main Menu to load the word processor.

Once in the word processor, remove the system disk, and re-insert the data disk. Now type in the following:

> This is an example of transferring spreadsheet information to the word processor. The spreadsheet data can be integrated wherever positioned in the file. Below is my checkbook example.

Position your cursor where you want the transfer to occur. Enter command mode and type **lc** . To the prompt for file name, respond by typing ´´sample´´. The spreadsheet data is now part of the word processing file. You may continue typing as needed.

To print formulas from the spreadsheet, or selectively print cells, a new command of ´´print´´ has been added. Simply position the cursor on the cell you want printed, enter command mode, and type **print** . The individual cell will be printed. As you move the cursor either right or down, the next cell will be printed. To turn off the printing, enter command mode, type **off** . Now you can cursor within the spreadsheet without any printing occurring.

When using the ´´print´´ command, note that the print routine does not know if you are printing across or down. It will print each cell sequentially as you cursor to it. If you want to see a true representation of your formulas in reference to cell position, print one row at a time, turning printing off before you cursor down to the next row.

WINDOWING -- VIEWING THE SPREADSHEET AND WORD PROCESSOR TOGETHER

Up to now, you've only been working with the spreadsheet OR the word processor on the screen. But through a process called 'windowing', you can view the spreadsheet AND the word processor at the same time. This also makes it easier to transfer data from the spreadsheet to the word processor.

With the Checkbook spreadsheet still on the screen, move the cell cursor to 1;1.

To split the screen into two windows, press the f1 key, type **ha** and press the RETURN key. The word processor operates in the top half of the screen and the spreadsheet operates in the bottom half. After typing ha, you are still in the spreadsheet, indicated by **C> .** You may perform all the commands; the only difference is that the number of rows displayed has been reduced to seven.

You need not be in the spreadsheet to access the half screen mode. You can also split the screen in two halves from command mode in the word processor. Simply press f1, type ha. It will look as if half of your word processing page has disappeared. If you cursor through your text, you will see that it scrolls only in the top half of the screen. Press f1, type tc, and the spreadsheet will appear on the bottom half of your screen.

To enter the word processor, press the f1 key, type tw and press the RETURN key. The white cursor appears at the upper left hand corner of the screen, and the L=01 C=01 appears at the bottom left hand corner. You may now operate the word processor as you normally would (if you haven't studied the word processor yet, read the tutorial at the beginning of this manual). You may perform all the word processor commands; the only difference is that the number of lines displayed has been reduced to twelve.

Being able to view the spreadsheet while typing a document is useful if you are using the spreadsheet to make calculations that will later be entered into the word processor, or if you want to actually transfer data from the spreadsheet to the word processor. Since ALL printing functions are done through the word processor, you'll have to transfer your data before you can get a printed copy.

To move back and forth between the programs while windowing, simply press f1 and type **tw or tc.**

To continue with this exercise, make your last command tw.

To return to full screen, press f1, type **fu** and press RETURN. When using this command, the full screen program will be whichever one you were last operating in. If you had been in the spreadsheet before the fu comand, a full screen spreadsheet would have appeared.

Note: The file you are working with in the spreadsheet or word processor will be retained in memory when you transfer operation from one to the other. You don't have to worry about losing a file.

To enter the spreadsheet again, press the f1 key, type **tc** and press the RETURN key. Now split the screen into two windows. Press the f1 key, type **ha** and press the RETURN key.

TRANSFERING DATA FROM THE SPREADSHEET TO THE WORD PROCESSOR

The program has two commands to transfer data from the spreadsheet to the word processor, map and blkmapR;C. Once data is transferred to the word processor, the data can be edited, formatted, and printed like a normal document.

The **blkmapR;C** command treats the data in the spreadsheet as a block of text. To transfer the data, you have to position the cell cursor in the upper left hand corner of the block and specify the row and column (R;C) of the lower right hand corner. Let's transfer the entire Checkbook to the word processor.

First you have to position the cursor in your word processing document where you want the data to go. Press the f1 key, type tw and press the RETURN key. Move the word processing cursor to line 10, column 01. This is where the data from the spreadsheet will be transferred to.

Now move back to the spreadsheet. Press the f1 key, type tc and press the RETURN key.

Move the cell cursor to 10;6, so you can see that this is the lower right hand corner of the block we want to transfer. Now move the cell cursor back to 1;1, which is the upper left hand corner of the block we want to transfer.

Press f1, type **blkmap10;6** and press the RETURN key. The screen reads WORKING.. and the entire data block transfers to the word processor. To see the transfer, press the f1 key, type tw and press the RETURN key. Now press the f8 key, then the CLR/HOME key to move to line 01, column 01. Notice how your Checkbook has merged into the word processor at line 10, exactly where you set the cursor.

In this way you can merge your spreadsheets into your text at any place in the document. Simply position the word processing

cursor where you want the data to go before giving the blkmapR;C command. Make sure you set your word processing format commands to the widest margins before transfer. If you are going to transfer seven columns, reset the margins to 0 and 77 and turn the word wrap off.

Note: The blkmapR;C command only transfers 11 characters of data per cell. The map command, to be discussed later, transfers all 36 characters. There is a limit to the amount of data you can transfer at one time: 7 columns and 50 rows.

PRINTING A SPREADSHEET

Now that your Checkbook is in the word processor, you can print it out. Set your margins and other format commands in reverse video, if you wish. You should also insert a nowrap print formatting command on line 09. Nowrap will maintain the integrity of the spreadsheet columns so they don't wrap around the page. Move the cursor to line 09, column 01. Hold down the CTRL key and press the 9 key to enter reverse video. Now type **nowrap** and press the RETURN key. Hold down the CTRL key and press the 0 key to exit reverse video.

Make sure your printer is interfaced properly and is turned on. To print the Checkbook, press the f1 key, type ***p** and press the RETURN key. The printer will print the data on the screen. You may also print your files from disk using the **pr** command from the word processor.

You may want to save your spreadsheets as word processing files, so you can use the linkfile command to link documents.

Remember, while in the word processor you may edit and format your spreadsheets any way you like.

TRANSFERRING DATA FROM THE SPREADSHEET TO THE WORD PROCESSOR

The **map** command allows you to transfer data from the spreadsheet to the word processor cell by cell, across a row (using the f7 key or the gotoR;C command) or down a column (using the up/down CRSR key or the gotoR;C command). You cannot map right to left, or from the bottom of a column up. The map command also allows you to transfer all 36 characters in a cell, as opposed to only 11 characters with the blkmapR;C command.

First, let's clear the word processor. Press the f1 key, type cm and press the RETURN key. The screen reads: ARE YOU SURE Y/N. Press the Y key and the screen will clear, ending up in the full screen word processor. To enter the spreadsheet again, press the f1 key, type tc and press the RETURN key. To split the screen, press the f1 key, type ha and press the RETURN key.

Like the blkmapR;C command, you first have to position the word processing cursor where you want the row or column to be transferred. Press the f1 key, type tw and press the RETURN key. Now position the cursor at line 01, column 01. Press the f1 key, type tc and press the RETURN key. Once in the spreadsheet, move the cell cursor to 3;1. This is the row you will transfer to the word processor, cell by cell. Press f1, type **map** and press RETURN. The cell cursor Check # transfers to the word processor. Now press the f7 key to move the cell cursor right one column. Data transfers to the word processor. Continue pressing the f7 key until the entire row has been transferred. You may only transfer rows left to right.

Move the cell cursor to 4;1 using the goto command. Press the f7 key at each cell in the row to transfer row 4 to the word processor.

Continue mapping each row in the same manner until you reach 10;6. Cell 10;6 has a formula. If you press the f3 key you will see this formula displayed in the word processor; to map the formula, press f7 once more. The formula is transferred to the word processor. In this way you can transfer the formula, instead of the number in the cell. This will help you develop your own spreadsheet models.

To turn off the map command, press the f1 key, type **mapoff** and press the RETURN key. The spreadsheet returns to normal operating mode.

Note: Since the map command transfers all 36 characters of a cell, the columns may go out of alignment when transferred to the word processor. To correct this, enter the word processor, set pointers, and use the INST/DEL key to line the columns up properly. You also may want to add column and row numbers to help keep things neat. You may find it easier to use the blkmapR;C command to transfer data, then go into the word processor and add more text to your labels.

Try some experimenting on your own using the blkmapR;C and map commands. You can transfer data in either half screen or full screen mode, but you will probably find it easier to do in half screen. You'll be able to see the data as it transfers. Try entering some text while in the word processor, then transfer some spreadsheet data following the text. Remember to position the word processing cursor in the text at the point of data transfer.

USING LABELS

The spreadsheet lets you give a text label to a cell and then use this label to find the cell later. Remember, each cell in the spreadsheet can have a number; text; a formula; a number AND

text; or a number AND a formula. If you put two values in every cell, however, you will use up memory and will not be able to use all 850 cells. If this happens, an OUT OF MEMORY error will occur.

To return to a full screen of the spreadsheet, press the f1 key, type fu and press the RETURN key.

Move the cell cursor to 6;6. First, let's clear our balances so we can start fresh. Press the f2 key to enter TEXT mode, and type blanks over the previous formula by holding down the SPACEBAR until the formula has been erased. Press the RETURN key. This is one way to erase a cell.

Move the cursor to 7;6. Press the f2 key, and repeat the previous process, erasing the formula.

Erase 8;6, 9;6, and 10;6 using the copy command. Copy any blank cell to these cells. The only balance remaining in the Balance column should be the initial 1000.00.

Move the cell cursor to 5;6. Instead of the old formula

5;6 + 6;4 - 6;5

to give us the new balance, let's substitute labels for the cell

5;6 (the previous balance)	becomes	p bal
6;4 (deposits)	becomes	dep
6;5 (checks)	becomes	chk

With the cell cursor at 5;6, press the f2 key to enter TEXT mode. Type **p bal** and press the RETURN key. P bal will appear in the Balance column. To get the 1000.00 back, press the f4 key, then press the RETURN key. Cell 5;6 is now labeled **p bal.**

Move the cell cursor to 6;4. Press the f2 key, type dep and press the RETURN key. 'Dep' will appear in the Deposit Amt column. To get the 0 back, press the f4 key, then press the RETURN key. Cell 6;4 is now labeled **dep.**

Move the cell cursor to 6;5. Press the f2 key, type chk and press the RETURN key. 'Chk' will appear in the Check Amt column. To get the 600 back, press the f4 key, then press the RETURN key. Cell 6;5 is now labeled **chk** .

Move the cell cursor to 6;6. Since the cells used for the formula are labeled, you can rewrite the old formula using the new labels. Instead of:

5;6 + 6;4 - 6;5

The formula looks like this:

p bal + dep - chk

To enter the formula using labels, press the f3 key, type [p bal] + [dep] - [chk] and press the RETURN key. A new balance of 400 will appear at 6;6.

WHEN USING LABELS IN FORMULAS, ALWAYS ENCLOSE EACH LABEL IN A SET OF BRACKETS OR THE COMPUTER WON'T UNDERSTAND YOU!

You can move to your labeled cells by using the goto command. One way to move to 6;4 would be to type **goto[dep]**.

As an alternative, type **@dep** and press RETURN. The cursor will move to 6;4. In this way you can label the cells you work with most frequently, then use those labels in formulas and as names for those cells. This will help make things more familiar to you and will speed up your work.

The fit command does not apply to cells with labels. The reason for this is that cell labels are unique to that cell, therefore, the labels cannot be adjusted in a relative restatement of a cell formula.

Now that you have the Command mode under control, you can move on to learn more about formulas, or go back and experiment some more with the spreadsheet. Use the Quick Reference Card to help you with the commands. You can't hurt anything, so go to it!

----------FORMULA MODE----------

Press f3 to enter formulas

Arithmetic Operators:

+	(addition)	*	(multiplication)
-	(subtraction)	/	(division)

↑ (raises the number or cell preceding the up arrow to the power following the up arrow)

← (assigns a formula to a cell; scan operators must be parentheses)

Commands:

sumR;CtoR;C	**Adds a series of numbers in a row (R) or column (C)**
subR;CtoR;C	**Subtracts a series of numbers in a row (R) or column (C)**
mltr;CtoR;C	**Multiplies a series of numbers in a row (R) or column (C)**
divR;CtoR;C	**Divides a series of numbers in a row (R) or column (C)**
minR;CtoR;C	**Finds the minimum value in a row (R) or column (C)**
maxR;CtoR;C	**Finds the maximum value in a row (R) or column (C)**

In addition to entering your own formulas for cells, you can use the above formulas to add, subtract, multiply, and divide rows or columns. You can also find out minimum and maximum values for individual rows and columns.

Let´s add column 5, the Check Amt. column. Move to cell 13;5. Press f3, type **sum6;5toll;5** and press the RETURN key. The total amount of checks written equals 665.

Now move to cell 13;6. Let´s find the highest balance in column 6. Press f3, type m**ax5;6toll;6** and press RETURN. The largest balance, or maximum value, equals 1535. In this way you can perform complex operations on rows or columns of data.

Formulas are evaluated from left to right, unless parentheses are used. Operations within parentheses are performed FIRST, then the process continues from left to right. You may only have ONE set of parentheses in a formula. For example: #.2 * (1;2 + 1;3) The 1;2 + 1;3 is added first, then multiplied by .2. Always precede numbers with a # to distinguish the number from a cell coordinate. You may also use labels and parentheses (remember to enclose the labels in brackets!) in one formula. For example: [p bal] - (#.13 * #3). The (#.13 * #3) is the bank charge (3 checks, 13 cents a check) subtracted from the previous balance. Other than those few rules, you can perform just about any formula you can think of.

Scientific Expression Commands:

cos	Cosine of cell where cursor is
cosR;C	Cosine of cell R;C
cos#XX	Cosine of number XX
sin	Sine of cell where cursor is
sinR;C	Sine of cell R;C
sin#XX	Sine of number XX
tan	Tangent of cell where cursor is
tanR;C	Tangent of cell R;C
tan#XX	Tangent of number XX
atn	Arctangent of cell where cursor is
atnR;C	Arctangent of cell R;C
atn#XX	Arctangent of number XX
abs	Absolute value of cell where cursor is
absR;C	Absolute value of cell R;C
abs#XX	Absolute value of number XX
exp	Natural exponent of cell where cursor is
expR;C	Natural exponent of cell R;C
exp#XX	Natural exponent of number XX
log	Logarithm of cell where cursor is
logR;C	Logarithm of cell R;C
log#XX	Logarithm of number XX

THE IFTRUE COMMAND

The iftrue command is used to evaluate an expression (such as sum6;5toll;5). Then based on whether that expression is true or false, place a value (constant or computed) into another cell. With this command you can modify the normal order of calculation.

Clear the checkbook spreadsheet from the screen and enter the following mortgage spreadsheet.

	C 1	C 2	C 3
R 1		Mortgage	
R 2			
R 3	Int. Rate		12.5
R 4	Principal		75000
R 5	Payments/Yr		12
R 6	Years		30
R 7			
R 8	Periodic Payment =		
R 9			
R10			

To use the program to calculate monthly mortgage payments, you first have to create a formula. Here is the formula for calculating interest payments:

$$\text{Monthly Payment} = \frac{\text{Prin} * (\text{Int}/(\text{No} * 100))}{1 - (1/((1 + (\text{Int}/(\text{No} * 100))) \uparrow ((\text{Yr} * \text{No}) - 1))}$$

Prin = Principal Int = Interest Rate
No = Payments per year Yr = Number of years

Since The Spreadsheet can only handle one level of nested parentheses, you have to break the formula down into smaller pieces. The answer will eventually be placed in cell 8;3.

To split up the mortgage equation, first evaluate the dividend:

Prin * (Int/(No * 100)).

Move the cell cursor to 13;1 and calculate (Int/(No * 100)). Using the table, this formula becomes 3;3/(5;3 * #100).

Press f3, type **3;3/(5;3 * #100)** and press RETURN. The answer is .0104166667.

The next expression to evaluate is Prin * (Int/(No *100)). Place the results in cell 14;1. You have already evaluated the expression in parantheses in the previous step with the answer at 13;1. All you need to do now is multiply 13;1 by the principal which is in 4;3.

Move to cell 14;1, press f3, type **4;3 * 13;1** and press RETURN. The answer is 781.25.

Now you need to calculate the expression ((Yr * No)-1) and place these results in 15;1. Using the table, this formula becomes (6;3 * 5;3) - #1.

At cell 15;1, press f3, type **(6;3 * 5;3) - #1** and press RETURN. The answer is 359.

At cell 16;1, evaluate the expression ´´1 + (Int/(No * 100)).´´ This expression is in cell 13;1. Press f3, type **#1 + 13;1** and press RETURN. The answer is 1.01041667.

Now, 1 + (Int/(No * 100)) ↑ ((Yr * No) - 1)

becomes: 16;1 ↑ 15;1

Move to cell 17;1. Press f3, type **16;1 ↑ 15;1** and press RETURN. the answer is 41.2743269.

You have all the pieces of the divisor. Now,

1 - (1/((1+Int/(No * 100))) ↑ ((Yr * No) - 1)

becomes: #1 - (#1/17;1)

Cursor to 18;1, press f3, type **#1 - (#1/17;1)** and press RETURN. The answer is .975771864.

The dividend is in 14;1 and the divisor is in 18;1. Move the cell cursor to 19;1. Press f3, type **14;1/18;1** and press RETURN. The answer is 800.648214. Your monthly mortgage payments would be truncated to 800.64. Note that the result is not rounded to the next highest value, i.e., 800.65.

To get the answer from 19;1 to 8;3, move to cell 8;3. Press f3, type **19;1** and press RETURN. 19;1 appears at 8;3. Since a formula must have TWO arguments (such as 3;2 + 4;2) and 19;1 is only ONE argument, you did not get the correct answer.

Press f3, type **19;1 * #1** and press RETURN. The correct answer, 800.648214 appears at 8;3.

To assign cell contents to another cell without using the copy command, type the left arrow key (←) at the upper left hand corner of the keyboard. For example,

Press f3, type 8;3 ← **19;1** and press RETURN.

The data in 19;1 will appear in 8;3. You can assign numbers, formulas, or logical expressions to any cell you choose using this command. For example: 4;3 ← #250 and 5;2 ← (2;2*#4).

In assigning a formula or logical expression only the RESULTS are assigned. The formula will not show up in the assigned cell. For example,

4;3 = #2000 iftrue 4;4 ← 4;3 + (4;3*#.1)

If cell 4;3 is equal to 2000, then add the contents of 4;3 with 10% of 4;3, and place the result in cell 4;4, otherwise, place a 0 in the current cell.

Iftrue can use the following operators:

=	(equal to)	R;C←	(indicates the cell where the new value
nte	(not equal to)		will be assigned)
>	(greater than)	←#XX	(indicates the number to be assigned)
<	(less than)	not	(not true)

To see how the iftrue command works, leave the cell cursor at 8;3. The value for cell 8;3 comes from cell 19;1. Under normal operation the value for 8;3 is calculated before 19;1 is updated. Using iftrue, you can eliminate the formula in 8;3 and cause the value to be entered for this cell after the value is calculated for 19;1. Press the f3 key, use the SPACEBAR to delete the formula and press the RETURN key.

At cell 20;1, press f3, type **19;1 >#0iftrue8;3←19;1** and press RETURN. This expression means: if 19;1 has a greater value than 0, then put the value of 19;1 into 8;3. A 1 appears at the C> prompt, meaning true. A 0 would have appeared if the expression was false. Move the cell cursor to 8;3 and the correct number, 800.648214, will be there.

Now move the cell cursor to 3;3. Change the Int. Rate from 12.5 to 10.5. Move the cell cursor to 4;3. Change the Principal from 75000 to 50000. To activate automatic mode, press the f1 key, type auto and press the RETURN key. Notice how the NEW correct answer, 457.551473 is displayed immediately in cell 8;3. Here are some other examples of formulas.

3;2 + 4;2 > #0 iftrue 20;2 ⟵ (3;2 + 4;2)

19;1 = #10 iftrue 15;4 ⟵ 20;4

15;11 nte #50 iftrue 2;4 ⟵ (2;2 * #4)

8;4 = #100 notiftrue 6;3 ⟵ #100

Iftrue is a very powerful command. It can be used in many different applications to evaluate various cells and draw conclusions from the data, then take another action based on these conclusions. Iftrue always has three parts:

1. The expression to be evaluated. The expression can use the previous operators and can refer to a cell or formula.

2. The iftrue or notiftrue (false) command.

3. The action to be taken if the expression is true or false. The action taken is a transfer of data to a cell. The data can be a cell, a number, or the result of a formula.

CHANGING THE SCREEN COLORS

Press f1, type **co#;** and press RETURN. Substitute a number from 0 to 15 for the #. Experiment with different numbers until you find the colors you like.